REGULATORY CONSIDERATIONS FOR USE OF CEMENTITOUS MATERIALS IN HIGH LEVEL WASTE TANKS AT HANFORD

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acronyms

- WAC = Washington Administrative Codes, specifically 173- 303-XXX Dangerous Waste Regulations
- HFFACO = Hanford Federal Facilities Agreement and Consent Order
- USDOE = United States Department of Energy
- RCRA = Resource Conservation and Recovery Act
- TC & WM EIS = Tank Closure and Waste Management Environmental Impact Statement
- SST’s = Single Shelled Tanks
- WMA = Waste Management Area (1 or more tanks farms)

Regulatory Context

- WAC
- HFFACO
- USDOE Orders
- Oversight and input from other entities
- Congressional Budget Amendments

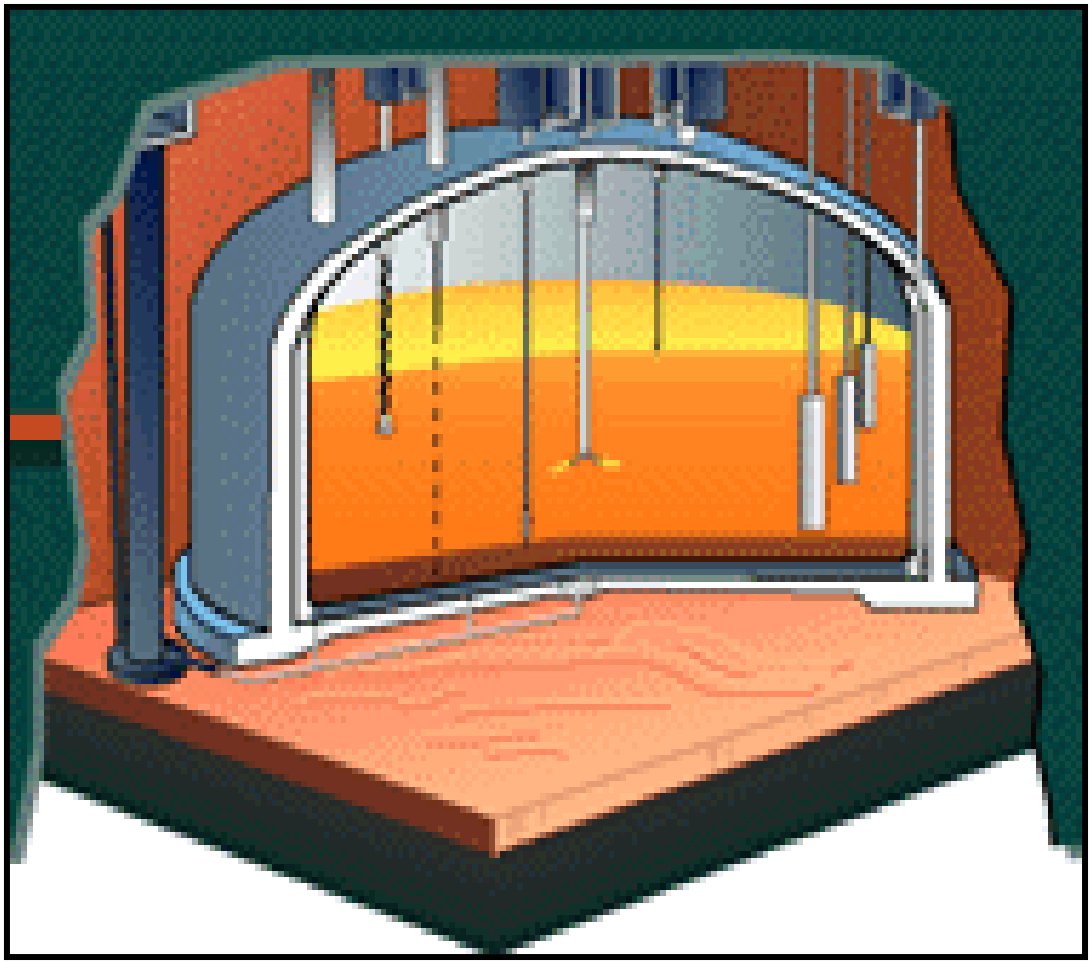
State Focus

- RCRA Delegated
- No impact to groundwater
- No decision on closure configuration
- Clean Closure
- Landfill Closure
- Tank Treatment and Length of project
- TC & WM EIS

Tank Status

- Tanks are considered “Unfit for Use”
- 33% of the 149 SST’s are considered leakers
- 12 - 40 tanks in a WMA (1 – 3 farms)
- Large number have spills associated with them
- All farms have significant soil contamination
- Groundwater contamination present

SST's



What there is in a tank (Approx)

- Size is approximately 1 Million gallons each
- Average of 1 inch of waste in a 75 diameter tanks (360 cubic feet)
- Flat or concave, some with holes and warped bottoms
- 200 kg U; 70 kg Cr (VI); 10,000 Ci Sr-90; 1,000 Ci Cs-137…NO_3 , Am-241, Pu-240

Adding Cementitous Materials

- Application for a permit from the State
- Meet USDOE requirements
- High level waste near surface
- Heavy metals and mobile contaminants
- Demonstration of Protectiveness
- Variance Request to Land Disposal requirements

Considerations for use of Cementitous Material

- Condition of tanks
- Access into tanks
- Different waste types
- Retrieval effects
- Placement effects on waste residuals
- Demonstration/research needs
- Short and long term needs

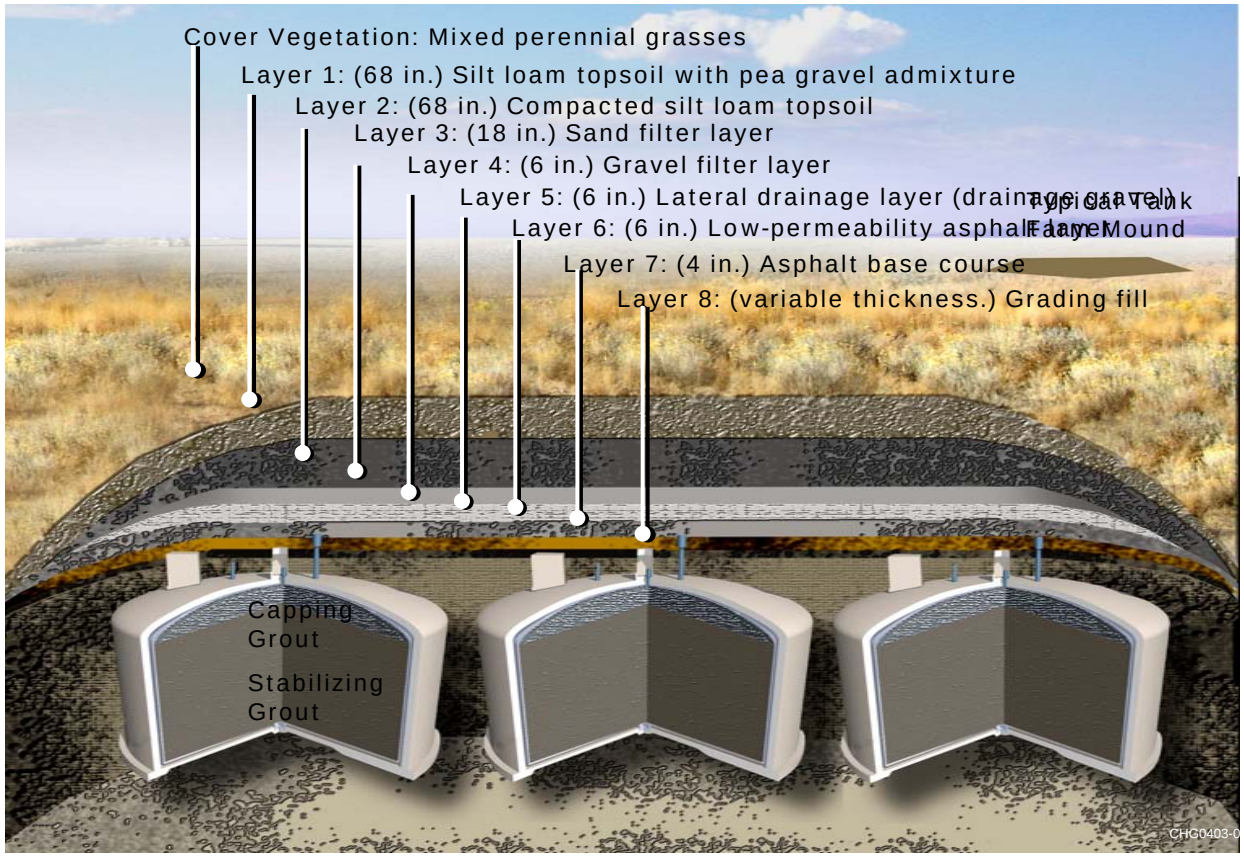
Chemistry

- Technetium and uranium incorporation
- Leaching rates testing methods
- Development of meaningful, predictive tests
- Maximized retardation and minimize impacts
- Control release rate

General Waste Chemistry

- PUREX
- Hot Semi Works
- RedOx
- Bismuth Phosphate reprocessing
- U & fission Products recovery

USDOE Base Case



Questions??

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